

# The Anthropometry of United States Army Men and Women: 1946-1977

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*A large amount of information on the body size of United States Army personnel, both men and women, has been collected during several anthropometric surveys carried out between 1946 and 1977. Changes in the body size of Army men between 1946 and 1966 and of Army women between 1946 and 1977 may be examined in an analysis of these anthropometric data. The data also may be utilized to define the contrasts in body size between Army men and women for application in the design and sizing of clothing and in the human engineering of equipment and materiel intended for use by both Army men and women.*

## INTRODUCTION

For some years, body size information in the form of anthropometric data has been utilized in military research and development programs. Knowledge of body size and proportions is essential for the design, sizing, and tariffing of military clothing and personal equipment. Of even greater importance is the fact that anthropometric data are required as a basic input in the human engineering of military equipment systems: vehicles, aircraft, and other weapons systems. The anthropometric measurement of the military population provides the basis for a metric description of that population in terms of the ranges of variation in body size. Anthropometric data then may be applied in order to achieve accommodation, compatibility, integration, safety, improved performance, and logistic efficiency in man/equipment systems. The importance of an-

thropometric data and their utilization in human engineering has been discussed in a recent review article (White, 1978b).

In the 31-year period between 1946 and 1977, several major anthropometric surveys have been carried out on U.S. Army personnel, both men and women. Army men have been measured three times (1946, 1966, and 1977), Army women have been measured twice (1946 and 1977), and male Army aviators have been measured three times (1959, 1967, and 1970). In the course of these surveys, a considerable amount of anthropometric data has been accumulated on the U.S. Army population. These data have been published in a large number of technical reports (White, 1977). However, comparisons of anthropometric data in order to examine differences or trends in body size are difficult when it becomes necessary to refer to several separate sources of information or technical reports.

United States Army anthropometric data collected between 1946 and 1977 have been collated and summarized in a recent techni-

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cal report (White, 1978a). The source data for the following six series of Army personnel were presented in summary tables in this report: U.S. Army men—1946; U.S. Army women—1946; U.S. Army men—1966; U.S. Army men (basic trainees)—1966; U.S. Army women—1977; and U.S. Army men (basic trainees)—1977. Following the summary tables, the data were reordered and collated so that all of the information for any one body measurement is presented together. The data for 118 anthropometric variables or body measurements thus are shown on a series of facing pages: statistical data (such as means and standard deviations) are given on the upper page, while percentile values are shown on the lower or facing page. This format facilitates ready reference to data for all of the body measurements.

Through the use of anthropometric data, the purpose of this paper is to summarize the changes in body size in U.S. Army men and women which have occurred over a period of years and also to contrast the differences in body size between U.S. Army men and women.

The relevance of military anthropometric data is emphasized by the lack of adequate and definitive anthropometric data on the U.S. civilian population of men and women. This paucity of civilian data represents a serious problem for designers and human engineers who, in many cases, are forced to resort to the use of anthropometric data on the U.S. military population. It is extremely disappointing that the as yet unpublished anthropometric data from the Health and Nutrition Examination Survey (HANES) of the U.S. adult population, carried out by the U.S. Department of Health, Education, and Welfare in 1971-1974, contains so few body measurements. In fact this more recent survey has even less useful and applicable anthropometric data than the earlier Health Examination Survey (HES) of 1960-1962. For example,

there are still virtually no anthropometric data available on the heads and faces or on the hands and feet of the U.S. civilian population.

Furthermore, a great deal of current speculation has resulted in a widespread impression that the U.S. population of men and women has been growing larger and larger in body size and that there have been tremendous increases in both stature and weight in recent years. The anthropometric data on Army men and women examined in this paper do not support these conjectures. While some increases in body size are indicated by the Army data, it will be seen that these changes actually are relatively slight.

#### U.S. ARMY MEN—1946 AND 1966

A major anthropometric survey of U.S. Army men was carried out by the Army Quartermaster Corps in 1946 under the direction of Francis E. Randall. In this survey, 105 062 men were measured at six separation centers. Of the total series, 96 381 men were World War II separablees and 8 681 men were new inductees. Sixty-six body measurements were obtained on all individuals. This was the first extensive Army anthropometric survey to be conducted primarily to provide body size data for the design, sizing, and tariffing of military clothing and personal equipment. The tremendous volume of data accumulated in this survey proved difficult to process in detail with punched cards, before the availability of magnetic tapes and high speed computers. Consequently, data for a selected sample of approximately 25 000 men were utilized as a "working series" for the 1946 Army men. The initial report on the methodology and the measurements was subsequently edited and revised (Randall and Baer, 1951). The 1946 anthropometric data on men were published in a report containing bivariate charts and regression tables (Newman and White, 1951).

As a part of the U.S. Armed Forces anthropometric surveys of 1966, a series of 6 682 Army men were measured. The Army series included basic trainees (40%), infantrymen (51%), armored crewmen (7%), and a small group of Army aviation personnel (2%). The men were measured at twelve Army installations in the United States between November, 1965, and April, 1966. Seventy body measurements were taken on each man. The anthropometric data of this survey represented the first major up-dating of body size information on U.S. Army personnel since the Quartermaster survey of 1946. The methodology and the data from the 1966 survey of Army men were published in detail in a technical report (White and Churchill, 1971). Changes in the body size of Army men between 1946 and 1966 also were discussed in this report.

Anthropometric data on a 1966 series of men drawn from the U.S. Army engaged in Vietnam thus are available for comparison with data for a much larger 1946 series of men representing the World War II Army.

Detailed comparisons of body size of Army men between 1946 and 1966 may be made from the data presented in a previous report (White, 1978a). Statistical and percentile values for a few selected body measurements of the 1946 and 1966 series of Army men are presented here in Tables 1 and 2, respectively. The anthropometric data represent body measurements of men wearing only undershorts. Values are given in centimeters, except for weight in kilograms and age in years. Table 1 shows the number of men measured (N), the mean, the standard deviation (S.D.), and the range of values, indicated by the minimum (Min.), the maximum (Max.), and

TABLE 1

Statistical Values for U.S. Army Men, 1946 and 1966

Measurement	N	Mean	S.D.	Range		Total	Stature Ratio
				Min.	Max.		
Weight (kg)							
1946	24 506	70.22	9.32	43.1	138.8	95.2	
1966	6 677	72.23	10.60	45.2	128.7	83.5	
Stature (cm)							
1946	24 508	173.91	6.39	150.0	200.0	50.0	1.000
1966	6 682	174.52	6.61	151.8	199.7	47.9	1.000
Sitting Height (cm)							
1946	24 352	90.88	3.41	77.0	105.0	28.0	0.523
1966	6 682	90.69	3.66	77.2	103.2	26.0	0.520
Chest Circumference (cm)							
1946	24 470	92.41	5.96	71.0	123.0	52.0	0.531
1966	6 682	93.77	6.69	71.8	124.2	52.4	0.537
Waist Circumference (cm)							
1946	24 472	77.73	7.01	59.0	119.0	60.0	0.447
1966	6 682	80.29	8.18	58.8	127.7	68.9	0.460
Hip Circumference (cm)							
1946	24 500	93.14	5.70	67.0	127.0	60.0	0.536
1966	6 682	94.21	6.25	77.2	134.2	57.0	0.540
Age (years)							
1946	24 502	24.28	4.94	15.0	57.0	42.0	
1966	6 682	22.17	4.64	17.0	55.0	38.0	

TABLE 2

Percentile Values for U.S. Army Men, 1946 and 1966

Measurement	Median							Range (1st-99th)
	1st	5th	25th	50th	75th	95th	99th	
Weight (kg)								
1946	51.9	56.4	64.0	69.4	75.7	87.0	97.5	45.6
1966	52.6	57.4	64.8	71.0	78.4	91.6	103.0	50.4
Stature (cm)								
1946	159.3	163.3	169.7	174.0	178.3	184.4	189.2	29.9
1966	158.9	163.8	170.1	174.4	178.9	185.6	190.3	31.4
Sitting Height (cm)								
1946	82.6	85.1	88.4	90.9	93.2	96.5	99.1	16.5
1966	82.0	84.5	88.2	90.8	93.2	96.7	99.2	17.2
Chest Circumference (cm)								
1946	80.3	83.6	88.4	91.9	96.0	102.9	109.2	28.9
1966	80.9	84.1	89.1	93.0	97.7	105.9	112.8	31.9
Waist Circumference (cm)								
1946	65.0	68.3	72.9	76.7	81.3	90.9	99.3	34.3
1966	66.3	69.7	74.5	78.9	84.7	95.9	105.6	39.3
Hip Circumference (cm)								
1946	80.5	84.6	89.2	92.7	96.5	102.9	108.7	28.2
1966	82.0	85.1	89.8	93.6	97.9	105.5	112.0	30.0
Age (years)				percentiles not available				
1946				20.6	23.0	31.5	43.0	35.6
1966	17.4	18.6	19.6					

the total range, obtained by subtracting the minimum from the maximum value. Also shown is the stature ratio, obtained by dividing the mean value of the body measurement by the mean stature for that series. Selected percentile values are given in Table 2, as well as the range from the 1st to the 99th percentile.

A comparison of mean values shown in Table 1 indicates that Army men measured in 1966 were about two years younger on the average than the men measured in 1946. The 1966 men were 2.01 kg heavier and 0.61 cm taller on the average than the 1946 men, but the mean values for sitting height showed virtually no change. The 1966 Army men were 1.36 cm larger in chest circumference, 2.56 cm larger in waist circumference, and 1.07 cm larger in hip circumference on the average than the 1946 men. These increases in girth

dimensions are a reflection of the increase of 2 kg in body weight. The stature ratios for the three body circumferences also were slightly higher for the 1966 men.

Since this comparison is based upon a very large series of men (1946) and a much smaller series (1966), the standard deviations of the body measurements were larger for the 1966 men, indicating a greater range of variation. As would be expected, the standard errors and the coefficients of variation also were larger for the 1966 series of men.

While the mean (or average) values for selected body measurements were slightly higher for the 1966 Army men, a greater contrast may be seen in the percentile values of Table 2. At the 95th percentile level, the 1966 men were 4.4 kg heavier and 1.2 cm taller in stature than the 1946 men, but sitting height had practically the same values. At the 95th

percentile, chest circumference was 3.0 cm larger, waist circumference was 5.0 cm larger, and hip circumference was 2.6 cm larger for the 1966 men, again reflecting the 4.4 kg increase in body weight. The ranges in percentile values (99th percentile minus the 1st percentile) also were greater for the 1966 men.

Although mean values for the body measurements of 1946 and 1966 Army men indicated that only slight increases had taken place in the bodysize of Army men during the 20-year period, the percentile values, particularly at the 95th percentile level, were higher for the 1966 Army men, indicating a relatively greater number of larger men in the Army population sampled in 1966.

#### U.S. ARMY WOMEN—1946 AND 1977

In the anthropometric survey carried out by the Army Quartermaster Corps in 1946, 8 864 U.S. Army women were measured at three Army separation centers. These women included 5 216 Women's Army Corps (WAC) officer and enlisted women, and 3 648 Army nurses. Sixty-five body measurements were taken on the women. The methodology and the measurements of this survey have been reviewed in a recent report (Laubach, McConville, Churchill, and White, 1977). The original data on 1946 Army women were published in a report containing bivariate charts and regression tables (Randall and Munro, 1949). However, not all of the measurements taken were analyzed and reported in the first publications of the data. Consequently, the 1946 anthropometric data on Army women subsequently were transferred from punched cards to magnetic tape in 1972, and the data were edited by Edmund Churchill through the use of computer programs. As a result, anthropometric data for all of the body measurements taken in 1946 now are available for a series of 8 100 women. The change in the total from 8 864 to 8 100 women

was the result of the elimination of faulty data in the original punched cards.

A new anthropometric survey of U.S. Army women was conducted between November, 1976, and February, 1977, with women measured at Fort Sam Houston, Texas, Fort McClellan, Alabama, Walter Reed Medical Center, Washington, D.C., and Fort Jackson, South Carolina. Anthropometric data for 69 basic body measurements were obtained on a sample of 1 331 women. An additional 28 body measurements were taken on a series of 255 women, and 31 head and face measurements were made on 216 women. In addition to the conventional anthropometry, 14 workspace measurements were taken on 300 women, and nine static muscle strength measurements were made on 349 women. The series of 1 331 women measured included 166 officers, 228 Army nurses, and 987 enlisted women. The 1977 survey of Army women represented the first updating of body size information on Army women since the Army Quartermaster survey of 1946. The results of the 1977 survey were published in a series of three reports by various authors (Laubach, McConville, Churchill, and White, 1977; E. Churchill, T. Churchill, McConville, and White, 1977; and T. Churchill, E. Churchill, McConville, and White, 1977).

Anthropometric data for a 1977 series of U.S. Army women drawn from a peacetime volunteer Army thus are available for comparison with a much larger 1946 series of women representing the World War II Army. Both series of women included Women's Army Corps (WAC) enlisted and officer personnel, as well as U.S. Army nurses. Since women now have been fully integrated within the U.S. Army, the WAC designation recently has been eliminated and is no longer used.

While detailed comparisons of body size of Army women between 1946 and 1977 may be made from the data presented in an earlier report (White, 1978a), statistical and per-

centile values for a few selected body measurements of the 1946 and 1977 Army women are presented in Tables 3 and 4, respectively. The data represent measurements of women wearing only bra and panties. Values are given in centimeters, except for weight in kilograms and age in years. The statistics and percentiles shown in Tables 3 and 4 are the same as those given in Tables 1 and 2, respectively.

A comparison of the mean values shown in Table 3 indicates that the Army women measured in 1977 were over four years younger on the average than the women measured in 1946. The 1977 women were 0.34 kg heavier and 0.82 cm taller in stature on the average than the 1946 women. Mean sitting height was 1.42 cm higher for the 1977 women. The 1977 women were 0.70 cm smaller in bust

circumference, but in waist circumference they were 4.01 cm larger, and in hip circumference they were 0.43 cm larger on the average than the 1946 women.

Some slight changes in body size between 1946 and 1977 Army women also are indicated in the percentile values for selected body measurements given in Table 4. At the 95th percentile level, weight was 2.0 kg less for the 1977 women, while stature was 1.9 cm greater than for the 1946 women; sitting height also was 1.9 cm higher. At the 95th percentile level for body girths, bust circumference was 4.3 cm smaller, waist circumference was 4.5 cm larger, and hip circumference was 1.2 cm smaller for the 1977 women.

Thus the mean values for the body measurements of 1977 Army women showed very slight increases in weight and stature, and in

TABLE 3

Statistical Values for U.S. Army Women, 1946 and 1977

Measurement	N	Mean	S.D.	Range		Total	Stature Ratio
				Min.	Max.		
Weight (kg)							
1946	8 107	59.63	9.00	39.0	111.6	72.6	
1977	1 331	59.97	8.69	39.9	125.1	85.2	
Stature (cm)							
1946	8 121	162.14	6.00	141.0	184.0	43.0	1.000
1977	1 331	162.96	6.52	142.6	183.8	41.2	1.000
Sitting Height (cm)							
1946	8 119	83.66	3.19	71.0	97.0	26.0	0.516
1977	1 331	85.08	3.59	73.1	96.2	23.1	0.522
Bust Circumference (cm)							
1946	8 115	88.91	7.68	68.0	128.0	60.0	0.548
1977	1 331	88.21	6.43	68.9	128.4	59.5	0.541
Waist Circumference (cm)							
1946	8 115	67.00	6.24	52.0	110.0	58.0	0.413
1977	1 331	71.01	6.90	56.5	117.5	61.0	0.436
Hip Circumference (cm)							
1946	8 113	95.09	6.70	74.0	126.0	52.0	0.586
1977	1 331	95.52	6.39	77.4	134.6	57.2	0.586
Age (years)							
1946	8 118	27.30	5.57	16.0	52.0	36.0	
1977	1 331	23.10	5.40	17.0	60.0	43.0	

TABLE 4

Percentile Values for U.S. Army Women, 1946 and 1977

Measurement	Median							Range (1st-99th)
	1st	5th	25th	50th	75th	95th	99th	
Weight (kg)								
1946	44.0	47.4	53.2	58.3	64.7	76.5	86.6	42.6
1977	42.7	46.6	54.1	59.6	65.1	74.5	83.8	41.1
Stature (cm)								
1946	148.6	152.4	158.0	162.0	166.2	172.2	176.6	28.0
1977	148.2	152.6	158.4	162.8	167.3	174.1	178.4	30.2
Sitting Height (cm)								
1946	76.2	78.4	81.5	83.7	85.8	88.9	91.1	14.9
1977	76.3	79.0	82.7	85.2	87.6	90.8	92.1	16.4
Bust Circumference (cm)								
1946	74.6	78.2	83.4	87.9	93.4	103.3	110.9	36.3
1977	76.2	78.4	83.7	87.9	92.1	99.0	105.8	29.6
Waist Circumference (cm)								
1946	56.2	58.8	62.6	66.0	70.4	79.0	86.5	30.3
1977	59.0	61.7	66.3	70.0	74.6	83.5	92.4	33.4
Hip Circumference (cm)								
1946	82.3	85.4	90.4	94.4	99.0	107.3	114.7	32.4
1977	81.6	85.5	91.3	95.3	99.4	106.1	112.2	30.6
Age (years)								
1946	21.1	22.7	23.7	25.9	30.2	39.7	47.2	26.1
1977	17.2	17.7	19.1	22.0	25.1	33.6	45.7	28.5

hip circumference, but a slight decrease in bust circumference and an increase in waist circumference of 4 cm. The 95th percentile values indicated decreases in weight, and in bust and hip circumference, but increases in stature and in waist circumference. The changes in body size between U.S. Army women measured in 1946 and in 1977, thus, are primarily changes in body proportions, with waist circumference showing the greatest increase in size.

#### U.S. ARMY MEN—1966 AND U.S. ARMY WOMEN—1977

The comparisons of anthropometric data discussed previously are concerned with changes in body size of Army personnel over a period of time. However, the increase not only in numbers of women but also in the importance of women in the U.S. Army has

emphasized the significance of body size information on both Army men and women. Anthropometric data on Army men and women are required for application and utilization in the design and sizing of clothing and in the human engineering of equipment and materiel which may be used or operated by both men and women in the Army.

A small series of Army men was measured at the conclusion of the 1977 anthropometric survey of U.S. Army women, thus providing directly comparable data on the body measurements of both men and women (McConville, Churchill, Churchill, and White, 1977). However, since this small sample of Army men was limited to young basic trainees, a larger and more representative series of Army men would provide a more suitable comparison of body size. Consequently, data for Army men measured in 1966 have been used here

for comparison with the Army women measured in 1977.

Statistical and percentile values for selected body measurements of 1966 Army men and 1977 Army women are presented in Tables 5 and 6, respectively. Values are given in centimeters, except for weight in kilograms and age in years. The statistics and percentiles shown in Tables 5 and 6 are the same as those given in Tables 1 and 2, respectively.

The Army women measured in 1977 were about one year older on the average than the 1966 Army men. A comparison of the mean values shown in Table 5 indicates that on the average the 1966 Army men were 12.26 kg heavier and 11.56 cm taller than the 1977 Army women. Sitting height was 5.61 cm greater for men on the average than for women. On the average, chest circumference

for men was 5.56 cm larger than bust circumference for women, while waist circumference was 9.28 cm larger for men than for women. However, in hip circumference the women were 1.31 cm larger than men on the average. The differences in proportions between men and women also are shown in the stature ratios. The relatively smaller waists and larger hips in women in proportion to stature are indicated by the stature ratios of 46 percent for men and 44 percent for women in waist circumference, but 54 percent for men and 59 percent for women in hip circumference.

The contrasts in body size between Army men and women are even more marked in the percentile values for the body measurements given in Table 6. At the 95th percentile level, representing large men and women, men

TABLE 5

Statistical Values for U.S. Army Men, 1966 and Women, 1977

Measurement	N	Mean	S.D.	Range		Total	Stature Ratio
				Min.	Max.		
Weight (kg)							
Men	6 677	72.23	10.60	45.2	128.7	83.5	
Women	1 331	59.97	8.69	39.9	125.1	85.2	
Stature (cm)							
Men	6 682	174.52	6.61	151.8	199.7	47.9	1.000
Women	1 331	162.96	6.52	142.6	183.8	41.2	1.000
Sitting Height (cm)							
Men	6 682	90.69	3.66	77.2	103.2	26.0	0.520
Women	1 331	85.08	3.59	73.1	96.2	23.1	0.522
Chest/Bust Circumference (cm)							
Men	6 682	93.77	6.69	71.8	124.2	52.4	0.537
Women	1 331	88.21	6.43	68.9	128.4	59.5	0.541
Waist Circumference (cm)							
Men	6 682	80.29	8.18	58.8	127.7	68.9	0.460
Women	1 331	71.01	6.90	56.5	117.5	61.0	0.436
Hip Circumference (cm)							
Men	6 682	94.21	6.25	77.2	134.2	57.0	0.540
Women	1 331	95.52	6.39	77.4	134.6	57.2	0.586
Age (years)							
Men	6 682	22.17	4.64	17.0	55.0	38.0	
Women	1 331	23.10	5.40	17.0	60.0	43.0	



TABLE 6

Percentile Values for U.S. Army Men, 1966 and Women, 1977

Measurement	Median							Range (1st-99th)
	1st	5th	25th	50th	75th	95th	99th	
Weight (kg)								
Men	52.6	57.4	64.8	71.0	78.4	91.6	103.0	50.4
Women	42.7	46.6	54.1	59.6	65.1	74.5	83.8	41.1
Stature (cm)								
Men	158.9	163.8	170.1	174.4	178.9	185.6	190.3	31.4
Women	148.2	152.6	158.4	162.8	167.3	174.1	178.4	30.2
Sitting Height (cm)								
Men	82.0	84.5	88.2	90.8	93.2	96.7	99.2	17.2
Women	76.3	79.0	82.7	85.2	87.6	90.8	92.7	16.4
Chest/Bust Circumference (cm)								
Men	80.9	84.1	89.1	93.0	97.7	105.9	112.8	31.9
Women	76.2	78.4	83.7	87.9	92.1	99.0	105.8	29.6
Waist Circumference (cm)								
Men	66.3	69.7	74.5	78.9	84.7	95.9	105.6	39.3
Women	59.0	61.7	66.3	70.0	74.6	83.5	92.4	33.4
Hip Circumference (cm)								
Men	82.0	85.1	89.8	93.6	97.9	105.5	112.0	30.0
Women	81.6	85.5	91.3	95.3	99.4	106.1	112.2	30.6
Age (years)								
Men	17.4	18.6	19.6	20.6	23.0	31.5	43.0	35.6
Women	17.2	17.7	19.1	22.0	25.1	33.6	45.7	28.5

were 17.1 kg heavier and 11.5 cm taller than women. Sitting height was 5.9 cm higher for men than for women at the 95th percentile level. Again at the 95th percentile level, chest circumference for men was 6.9 cm larger than bust circumference for women, while waist circumference for men was 12.4 cm larger than for women. Hip circumference for women was 0.6 cm larger than for men at the 95th percentile level.

At the 5th percentile level of body measurements for small men and women, the contrasts in body size between men and women also were consistent, but were slightly less than at the 95th percentile level. Weight for men was 10.8 kg heavier, and stature was 11.2 cm taller for men than for women at the 5th percentile level. Sitting height was 5.5 cm higher for men than for women at the 5th percentile level. The 5th

percentile value for chest circumference for men was 5.7 cm larger than bust circumference for women, while waist circumference was 8.0 cm larger for men than for women. Hip circumference at the 5th percentile was 0.4 cm larger for women than for men; in fact above the 5th percentile all values for hip circumference for women are larger than those for men.

The anthropometric data on U.S. Army men and women presented here indicate that men are larger than women in all body size measurements except for hip circumference, in which women exceed men. The differences in body size between men and women also are consistent in the percentile values for body measurements, from the 5th percentile values up to the 95th percentile values. The differences in body proportions between men and women, particularly in the relatively

smaller waist circumference and the larger hip circumference in women, emphasize the importance of anthropometric data in the design and sizing of clothing which may be intended for use by both Army men and women. The differences in body size between men and women—sitting and eye heights, shoulder and hip breadths, arm and leg functional reaches—also are critical in the design and human engineering of equipment and material intended for use and operation by both men and women in the Army.

In summary, since adequate and definitive anthropometric data for the U.S. civilian population of men and women have been lacking for some time and continue to be unavailable, body size information on the U.S. military population frequently must be utilized and applied by designers and human engineers. In spite of a widespread impression that the height and weight of the U.S. population are greatly increasing, the data for U.S. Army men and women presented and discussed here do not support this impression. Although increases may be found in some body measurements of U.S. Army men and women over a period of some years, these changes generally are rather slight and are not of any great practical significance. However, the contrasts in body size and also proportions between Army men and women discussed here are of significance, both in the design and sizing of clothing, and in the human engineering of equipment intended for use by both men and women.

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Through the courtesy, cooperation, and assistance of the United States Air Force and Mr. Charles E. Clauser, data from the anthropometric survey of U.S. Army men in 1966 were processed and edited by Mr. Edmund Churchill. Mr. Churchill also reprocessed and edited the anthropometric data on 1946 Army women. The anthropometric survey of U.S. Army women in 1977 was carried out under contract

by the Anthropology Research Project, Webb Associates, Inc., Yellow Springs, Ohio. Mr. Edmund Churchill was the senior scientist, assisted by Dr. John T. McConville, Dr. Lloyd L. Laubach, and Mr. Thomas Churchill. This group trained and supervised the team of six women who collected the anthropometric data in the field; they also carried out the data processing and editing, and prepared the four technical reports which have been published on the results of the survey.

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